

basin was not excavated during the greatest extension of the ice-sheet, which, as shown by the striæ on the higher ground, passed directly across the valley. But in the bottom of the valley the striæ point up the lake, and this fact makes it probable that the excavation of the basin was the work of local ice, in other words, that it dates from a time when the valley-glaciers had ceased to coalesce. The islands near the upper end of the lake are wrought out of hard Corniferous sandstone and Water-lime exposed on the crown of the Cincinnati anticline. This hard barrier, Prof. Newberry believes, opposed an obstinate resistance to the passage of the glacier, and was consequently left in comparative relief.

The Ohio geologists without exception appear to be sub-aërialists, and indeed, the scenery of the State—such as it is—could hardly admit of any other explanation. It would not be easy to connect valleys of some hundreds of feet in depth with faults of less than a yard.

Of the palæontology of the Reports, we need only say that it is a remarkable proof of the enthusiasm, energy, and success of the late Prof. Meek and the naturalists who assisted him, several of them without any compensation. The publication of the Survey as a whole marks an epoch in culture as well as in material progress, in which all the well-wishers of the State must rejoice.

#### OUR BOOK SHELF

*History of Nepāl.* Translated from the Parbatīyā, by Munshi Shero Shunker Singh and Pandit Shri Gunānand. With an Introductory Sketch of the Country and People of Nepāl, by the Editor, Daniel Wright, M.A., M.D. (London, Cambridge Warehouse; Cambridge, Deighton, Bell, and Co., 1877.)

THE Cambridge University Press have done well in publishing this work. Such translations are valuable not only to the historian but also to the ethnologist; perhaps more so to the latter than the former, as the very myths with which a people are apt to adorn their own history may become, in the hands of a cunning ethnologist, a clue to their racial connections. Dr. Wright's Introduction is based on personal inquiry and observation, is written intelligently and candidly, and adds much to the value of the volume. The coloured lithographic plates are interesting.

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

##### The First Swallow at Menton

THE first swallow arrived here alone in the rain on Monday, March 19. It entered the best room of the *curé* by one of the windows which chanced to want a pane, and the good old man immediately removed a pane from the other window, by which the swallows have been in the habit of going in and out. I did not hear of the arrival of this summer resident until the 23rd, when I immediately paid it a visit. It is still solitary but not uncomfortable; it flits about the room from place to place, and from nest to nest, twittering very contentedly; and when a bright hour comes it flies out, where, sporting in the sun it soon makes a hearty meal. But it has arrived decidedly too soon, for it has found as yet mostly wet and rather cold days with snow-covered mountains for its immediate surrounding. Such, however, is the climate of this place, difficult to conceive by untravelled Englishmen, that I at this moment bask outside in the sun, soothed by the singing of birds, surrounded by flowers and butterflies, and the green trees with their golden fruits. I am in

the midst of summer, and yet I have but to turn my head, and there, close at hand, are the mountains white with snow.

The coldest weather we have had this winter began with this month. The only time I have seen ice was on the morning of March 1. (On the preceding night, I see by a letter to NATURE, vol. xv. p. 399, that the thermometer at the Stonyhurst Observatory went down to 9° F., the lowest temperature there recorded during the last sixteen years.) That morning, cheated by the serene stillness and the bright sunshine, I, before getting out of bed, resolved to make a journey to the sea-side—a distance of about three miles. A lunch was immediately packed up and the donkey of the *curé* borrowed for the occasion. As soon as I descended into the valley—Cabrolles, consisting of some dozen houses, all the dwellings of peasants, and hung on the mountain side like so many birds' cages or birds' nests on the back wall of a court, open only to the south, is 300 feet above the level of the sea, and enjoys a climate superior to that of the much-vaunted Menton. I am, however, the first *étranger* who has ventured to brave the isolation, the inconvenience, and want of accommodation.—Well, as I have said, on descending into the valley, a change of temperature suggested that it would be preferable to have my Italian cloak around me, instead of carrying it before me on the donkey. Proceeding a little farther, I saw with astonishment large quantities of ice in the torrent, and in turns of the road looking northward, icicles, thick as my arm—which, however, is one of the thinnest—hanging from the rocks. Still I went forward quite irrationally, carried along solely by the force of the impetus with which I started, for, as I approached Menton, I had to make way in the face of a biting cold wind. But I would certainly have shivered over my cold lunch among the rocks or ruins at Cap Martin, had not my progress received a check at Menton, in the for the moment irritating discovery that the key of the provision-bag had been, I may now say providentially, lost. I accepted the hospitality of a kind English clergyman, who gave me a nice warm lunch, after which I slowly wound my way back to my mountain retreat, where I dwell almost as completely removed from the winter visitants of these shores as is the now lonely swallow from its companions, the summer visitants, which have not unwisely made a halt somewhere by the way.

After this long digression I must return for a moment to the swallows of Cabrolles. They live in the rooms with the people, attaching their nests generally to the beam which supports the ceiling. On their arrival, whether it be by night or by day, they enter at once and take possession of their old habitations. Madame Valetta, an old woman of seventy-three, has two or three times given me a graphic account of how, when she was a young woman and had her husband by her side, they were both frightened almost to death one night by something which from time to time gave a flap-flap against the glass of the window. Madame, however, summoned courage to urge her husband to get up and open the window, which, though "all of a shake," he did, when whish! very like a spirit, a weary swallow glided past him and was the same instant peacefully reposing in its nest.

DOUGLAS A. SPALDING

Cabrolles, près de Menton, France,  
March 24

##### Coal Fields of Nova Scotia

IN his address to the Iron and Steel Institute (NATURE, vol. xv., p. 462), Dr. Siemens stated that the area of the Coal Fields of Nova Scotia was 18,000 square miles, and the production in 1874 1,052,000 tons. If Dr. Siemens will refer to Dr. Dawson's "Acadian Geology," the Reports of the "Canadian Government Geologists," and Brown's "Coal Fields and Coal Trade of Cape Breton," he will find that he has greatly overstated the area of the Nova Scotia Coal Fields. From these sources, which I believe are perfectly reliable, I make out that the whole area of the Nova Scotia Coal Fields does not amount to 1,000 square miles, distributed over the following counties:—

	Square Miles.
Cumberland	250
Pictou	34
Cape Breton	194
Victoria	6
Inverness	40
Richmond	10
	534

To this amount, however, must be added the portions of the Cape Breton and Inverness Coal Fields lying under the sea, which, supposing the seams can be worked a distance of five miles beyond high-water mark, will make the total area of the Nova Scotia Coal Fields 859 instead of 18,000 square miles.

The production in 1874 has also been greatly overstated in Dr. Siemens' Table, as I find by reference to the Government Inspector's Report for the year 1876, that the production in 1874 was only 749,127 tons.

R. B.

[Dr. Siemens informs us that the difference referred to by our correspondent chiefly arises from the fact that in American reports Nova Scotia is made to include the maritime province of New Brunswick as well as Cape Breton Island, both of which contain large areas of coal-fields, although those fields are as yet very imperfectly developed. The figures given in the address were taken from Macfarlane's very elaborate work on the "Coal-Regions of America." With reference to the coal production, this should be for the year 1873, and is also given on the authority of Macfarlane, who quotes from the Report of the Department of Mines.—ED.]

#### Greenwich as a Meteorological Observatory

A CAREFUL examination of the interesting communication by Mr. Alexander Buchan to the Scottish Meteorological Society, on "The Temperature of the British Islands," based on observations for the thirteen years ending 1869, fails to support his conclusion (NATURE, vol. xv., p. 450) that the proximity of London does not appreciably influence the temperature as recorded at the Royal Observatory, and that the temperature of Greenwich during recent years has not been in excess of that of surrounding districts. The evidence is quite the reverse. Extracting the figures, given by Mr. Buchan in the paper referred to, for all the stations within a radius of sixty miles of the metropolis, sixteen in number besides Greenwich, it appears that their mean is  $50^{\circ} \cdot 1$ , that of Greenwich being  $50^{\circ} \cdot 6$ . Allowing for elevation, the values are respectively  $50^{\circ} \cdot 68$  and  $51^{\circ} \cdot 13$ . Omitting, however, several stations such as Camden Town, which, forming part of London, is clearly inadmissible for the comparison, and Maidstone and Canterbury, where observations were made on two years only of the thirteen, the temperature of the ten remaining stations is  $50^{\circ} \cdot 59$ . Thus, according to data furnished by Mr. Buchan himself, Greenwich is warmer than the south-east of England generally by more than half a degree ( $0^{\circ} \cdot 54$ ). It may be added that, from the same data, the temperature of the district under consideration north of the Thames is  $50^{\circ} \cdot 5$ , and south of the river  $50^{\circ} \cdot 8$ .

H. S. EATON

#### Centralisation of Spectroscopy

In his letter (NATURE, vol. xv. p. 449) Prof. Smyth makes a statement respecting the new "half-prism" spectroscope which I cannot help thinking must be founded on a misapprehension of the principle involved. This will, I trust, be made clear when my paper is published in the forthcoming number of the *Proceedings* of the Royal Society; but meanwhile, as Prof. Smyth appears disinclined to wait for a full explanation of the instrument, I shall be most happy to answer his objections when he informs me what particular "laws of Sir Isaac Newton and nature" are in opposition to the principle of this spectroscope.

Against Prof. Smyth's confident assertion that all definition is lost in this instrument, which he has never seen and of which he can only know by hearsay, I have only to set the statement that a small experimental spectroscope on the new plan, with two "half-prisms," is, as a matter of fact, decidedly superior in definition, as well as in brightness of spectrum, to the large Greenwich spectroscope, with ten large compound prisms, of which the excellence is sufficiently attested by the accordance of the results obtained for the sun's rotation by its means. This statement is based on a careful comparison of the sodium lines, and also of the  $b$  group in the solar spectrum, as seen with the two instruments,  $b_2$  and  $b_4$  with the finer lines in their neighbourhood being shown with remarkable distinctness in the new form of spectroscope, small though it is. In this assertion, I think, I shall be fully borne out by several astronomers to whom I have shown the action of the new spectroscope.

Though I am not in any way concerned with Prof. Smyth's argument in the earlier part of his letter, I may mention for his

information that "during the last twenty years" only *two* spectroscopes have been made for Greenwich Observatory (one of these having only a single prism of small dispersion), and that our second or powerful spectroscope was only made *three* years ago; whilst the Edinburgh observatory has, for the past *four* years, possessed *three* spectroscopes which are almost precisely identical with those used with such effect by Dr. Huggins.

W. H. M. CHRISTIE

Royal Observatory, Greenwich, March 27

#### Morphology of "Selaginella"

BEFORE instituting a comparison it is generally prudent to ascertain that the things to be compared are comparable. I am afraid Mr. Comber, who has done me the honour of making some remarks on what I have said in the pages of NATURE on the primordial type of flowers, has neglected this precaution. If I understand him rightly, he suggests that the "spike" of *Selaginella* is the homologue of the spike of *Carex pulicaris*. He compares, then, the scales bearing macrosporangia of the former with the lower glumes bearing each an ovary of the latter.

Now in the first place, if he had studied the matter a little more (if he will allow me to say so), he would have seen that the ovule, and not the ovary, is the equivalent of the macrosporangium, and that the embryo sac, and not the ovule, is the equivalent of a macrospore. This leaves the ovary unaccounted for, and the homology hopelessly breaks down on that point.

But this is not all. Mr. Comber has omitted all notice of the singular structure, the perigynium, and also of the equally singular structure, the "seta," which it contains along with the ovary, and which happens to be particularly well represented in *Carex pulicaris*. If he will take the trouble to look at a short paper which I have published in the *Journal* of the Linnean Society (Botany) vol. xiv., pp. 154-156, pl. xii., he will find that I have carefully discussed the morphology of the female flower of this very plant. I think I have succeeded in showing that far from being a simple racemose inflorescence it is a compound raceme or panicle reduced in a very peculiar manner. I am afraid, therefore, that Mr. Comber has been led away by resemblances of a very superficial character, and that the fact *Selaginella* has a "spike" and that *Carex* has a "spike," is a point of contact between the two about as significant as the existence of a river in both Macedon and Monmouth.

In fact, far from being plants of a primitive type, the *Cyperaceae* are generally regarded as reduced representatives of plants of much more fully developed character, the exact nature and relationship of which we have no materials for at present estimating.

W. T. THISELTON DYER

#### Tungstate of Soda

WITH regard to your note (NATURE, vol. xv. p. 460) upon muslin rendered unflammable by tungstate of soda, will you allow me to say that when properly prepared the muslin is fairly unflammable. I say unflammable—not fireproof. There can be no doubt from experiments made in Prof. Gladstone's laboratory that muslin prepared with a sufficient quantity of the salt will not catch fire by ordinary means, but no one could reasonably expect it to stand an *auto da fe* such as that to which I saw Dr. Wright subject his dummy, and fortunately not his assistant, last Saturday fortnight.

MATTHEW W. WILLIAMS

Chemical Laboratory, Royal Institution

#### Traquair's Monograph on British Carboniferous Ganoids

WILL you kindly permit me through the medium of your journal, to correct and apologise for a very awkward blunder which occurs in the first part of my monograph on British carboniferous ganoids, recently published by the Palaeontographical Society? In the introduction I have advocated the retention of the *Dipnoi* as a distinct order of fishes, but at page 41, in a manner unaccountable to myself, for I certainly did not mean it, I have included them as a sub-order of the Ganoidei. That this "slip of the pen" was not detected in the revision of the proofs must have been due to an amount of carelessness of which I am justly ashamed.

R. H. TRAQUAIR

Edinburgh, April 2